



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,265	09/26/2003	C.P. Vijay Kumar	200311277-1	4938
22879 7590 05/15/2008 HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400				
EXAMINER CHAUHAN, LOREN B				
ART UNIT 2193		PAPER NUMBER		
NOTIFICATION DATE 05/15/2008		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

JERRY.SHORMA@HP.COM
mkraft@hp.com
ipa.mail@hp.com

Office Action Summary

Application No.

10/670,265

Applicant(s)

KUMAR ET AL.

Examiner

LOREN CHAUHAN

Art Unit

2193

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 4-17 and 19-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-2, 4-17, 19-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This action is in response to remarks filed on 2/12/2008. Claims 3 and 18 have been cancelled. Claims 1, 4, 16 and 21 have been amended. Claims 1-2, 4-17 and 19-21 are pending for examination in this application.

Response to Arguments

2. Applicant's arguments filed 2/12/2008 have been fully considered but they are not persuasive.

In remarks applicant argues:

Allen does not teach means for defining the DLKM data structures and wrapper functions comprise an autoload statement.

Examiner's response:

Examiner respectfully disagrees. According to applicant's specification page 1, lines 25-29, auto-loading is considered as on-demand loading of a module. In col. 1, lines 10-11, Allen teaches his field of invention is automatically loading modules of a kernel on as needed basis (i.e. on-demand loading) and further in col. 1, lines 40-45 Allen teaches present invention provides modules in the kernel memory on demand and on as needed basis (i.e. auto-loading). Also, in col. 8, lines 20-29 and fig 8, Allen teaches a wrapper function which has a mod_install routine to install a module which is an autoload statement for a

particular module. Therefore, it is inherent that Allen's modules comprise an autoload statement.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-2, 4-17 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen (US Pat. No 5,634,058) in view of Roth (US 20040237070), and further in view of Roth (US Pat. No. 7,076,647) (hereinafter Roth I).

5. As per claims 1, 16 and 21, Allen teaches the invention substantially as claimed including in a computer system under control of an operating system comprising modules of code and an operating system kernel, a dynamically loadable stub module, associated with a dynamically loadable kernel module (DLKM) for dynamically loading modules into the kernel whereby access to the operating system is provided (Abstract; col. 1, lines 11-12), comprising:

a base stub module (col. 6, lines 39-45);

means for defining DLKM data structures (fig. 6b, col. 6, lines 66-67) and wrapper functions wherein the means for defining the DLKM data structures and wrapper (col. 7, lines 25-28) functions comprises an autoload statement (col. 1, lines 10-11, 43-47);

means for defining load and unload routines (col. 7, lines 18-21);

means for allowing dynamic loading by DLKM infrastructures (col. 7, lines 40-43);

and

means for generating a dynamically loadable stub module object file (col. 7, lines 59-60).

6. Allen does not teach means for defining metadata structures, means for allowing dynamic loading by DLKM infrastructures.

7. Roth teaches a module developer expresses all of the data describing the module referred to as "module metadata" (page 2 [0021], lines 2-3), but fails to teach means for allowing dynamic loading by DLKM infrastructures.

8. However, Roth I teaches the kmtune command, part of the DLKM infrastructure, allows multiple kernel modules to be configured (col. 2, lines 5-8) and configurable parameters that allow users to customize the behavior of kernel (col. 2, lines 49-50) and to tune their systems without system reboot (col. 2, lines 54-55).

9. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Allen's system by including means for defining metadata and allowing dynamic loading by DLKM infrastructure in Roth and Roth I because by doing so kernel can be reconfigured without rebooting and the reconfiguration of the kernel is greatly simplified (Allen, col. 8, lines 56-58).

10. As per claims 2 and 17, Allen teaches the means for defining the DLKM data structures and wrapper functions comprises:

```
struct mod_type_data (fig. 6b; col. 7, lines 2-3);  
struct modlink (col. 7, lines 40-42);  
struct modwrapper (fig. 8, col. 8, lines 21-22); and  
struct mod_operations (fig. 7A, col. 8, lines 32-33).
```

11. As per claim 4, Allen teaches the autoload statement comprise statements class, and one of stub funcname retfunc, ustub funcname retfunc argnword, and wstub funcname retfunc (fig. 6C-1, last two lines).

12. As per claim 5, Allen does not explicitly teach the means for defining load and unload routines comprises:

```
<module_name> _stub_load (); and  
<module_name> _stub_unload ().
```

13. Allen teaches the module sub-system employs a function to load and unload a module (col.7, lines 18-21). It would have been obvious to one of ordinary skill in the art at the time of the invention that the function to load and unload a module as taught by Allen is in fact the load and unload routines.

14. As per claim 6, Roth teaches the means for defining metadata structures comprises module version, type, definition, states, and loadtime (page 2, [0023], lines 1-4).

15. As per claims 7 and 19, Roth teaches the means for defining metadata structures comprises a developer-supplied modmeta file (page 2, [0022], lines 10-13).

16. As per claims 8 and 20, Roth teaches the modmeta file is compiled by a modmeta compiler to produce a stub modmeta.c file (page 3, [0033], lines 3-4).

17. As per claim 9, Roth teaches metadata is supplied from the associated DLKM (page 3, [0032], lines 6-7).

18. As per claim 10, Allen does not explicitly teach the dynamically loadable stub module is included in a kernel data space.

Art Unit: 2193

19. However, Allen teaches that a set of modules is loaded initially into the kernel (col. 1, line 45). It would have been obvious to one of ordinary skill in the art at the time of the invention that a set of modules loaded in kernel as taught by Allen includes the dynamically loadable stub module.

20. As per claim 11, Allen teaches the dynamically loadable stub module is capable of being statically linked to a kernel executable (col. 3, lines 46-64).

21. As per claim 12, Allen teaches the data structures comprise:

struct mod_stub_modinfo; and

struct mod_stubinfo (fig. 6B, col. 7, lines 2-3).

22. As per claim 13, Allen teaches the stub routines that use the data structures to manipulate stack frames to transfer control from the dynamically loadable stub module to the associated DLKM (col. 6, lines 48-51).

23. As per claim 14, Allen teaches the means for allowing dynamic loading by DLKM infrastructures comprises an ELF section (col. 7, lines 59-60).

24. As per claim 15, Allen does not explicitly teach the associated DLKM is a miscellaneous module.

25. However, Allen teaches that the kernel consists of a plurality of modules including miscellaneous modules (col. 3, lines 27, 31). It would have been obvious to one of ordinary skill in the art at the time of the invention that the kernel having miscellaneous modules include DLKM miscellaneous module.

Conclusion

26. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LOREN CHAUHAN whose telephone number is 571-270-1554. The examiner can normally be reached on Mon.-Thr. 9:30-5:00 (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lewis Bullock can be reached on 571-272-3759. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2193

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Lewis A. Bullock, Jr./
Supervisory Patent Examiner, Art Unit 2193

Loren Chauhan
Examiner
Art Unit 2193

/L. C./
Examiner, Art Unit 2193